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Interoffice Memo



# LONE STAR INDUSTRIES, INC.

One Greenwich Plaza, Greenwich, Connecticut 06830

Originating Office: Seattle Cement Plant

Date: July 21, 1983

TO: R. O. Lippi  
FROM: N. A. Fernow  
SUBJECT: Area Raw Materials

The following will expand on the chemistry and physical properties of the Canadian coal currently being burned in Seattle. Several silica sources available from Steilacoom, Ravensdale and Wenatchee will also be examined.

The coal presently being used in the Seattle plant is mined in Southeastern British Columbia. The coal is railed from the mines in that area to one of two coastal loading terminals, Roberts Bank or Port Moody. Both terminals are located near Vancouver, B.C. and are capable of loading ships up to 168,000 dead weight tons.

The chemical and other information pertains to an average of the coal received from these terminals.

## CANADIAN COAL

Moisture	8.0%
Ash	13.1
Volatile Matter	20.4
Fixed Carbon	58.5
Sulfur	0.27
BTU/lb.	11,675

## ASH ANALYSIS

SiO <sub>2</sub>	62.9%
Al <sub>2</sub> O <sub>3</sub>	30.5
Fe <sub>2</sub> O <sub>3</sub>	2.5
CaO	2.7
MgO	0.4
SO <sub>3</sub>	0.05
Loss	0.2
Na <sub>2</sub> O	0.3
K <sub>2</sub> O	1.1

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Although this coal has a 1/8-inch average size, it unloads well with little loss to windage. The maximum size encountered is about 2 inches.

The current cost for coal from Canada ranges from \$33.50/ton to \$36.50/ton, FOB the respective loading terminal for each mine.

Lone Star operates a sand and gravel pit on Puget Sound at Steilacoom. This pit supplies sand and aggregates by barge to the ready-mix plants in Seattle.

The Steilacoom sand is a processed material and has been screened.

STEILACOOM SAND

SiO <sub>2</sub>	74.6%
Al <sub>2</sub> O <sub>3</sub>	11.9
Fe <sub>2</sub> O <sub>3</sub>	3.8
CaO	2.4
MgO	1.8
SO <sub>3</sub>	0.04
Loss	1.6
Na <sub>2</sub> O	1.9
K <sub>2</sub> O	0.7

The current price for this material is \$3.15/ton loaded on a barge, their dockside. There is a discount available for volume buys.

The loading facilities at Steilacoom are set up for barges hauled on Puget Sound. The dockside draft is 12 feet at a zero tide but could accommodate a vessel with a 30-foot draft, 40 to 50 feet from dockside.

The dock is 550 feet long, and they have loaded barges up to 8,000 tons with no trouble.

Sand from the Ravensdale mine has the following analysis:

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RAVENSDALE SAND

Moisture	8.8%
SiO <sub>2</sub>	78.4
Al <sub>2</sub> O <sub>3</sub>	12.2
Fe <sub>2</sub> O <sub>3</sub>	2.1
CaO	1.8
MgO	0.4
SO <sub>3</sub>	0.03
Loss	3.8
Na <sub>2</sub> O	0.3
K <sub>2</sub> O	1.7

This material is located about 40 miles from Steilacoom and would have to be trucked to the pit prior to loading. They also have rail loading, but for the short distance to travel, the rehandling would only add to the delivered price.

The current price for this material would be about \$9.50, FOB Steilacoom.

Wenatchee silica has several grades available for shipment. There is a high silica material (E Silica), a sand with a high alumina content (AB Silica), and a blend of the two that matches the material from Ravensdale except for a lower alkali content (D Silica).

WENATCHEE SILICA

	<u>E Silica</u>	<u>AB Silica</u>	<u>D Silica</u>
Moisture	7.3%	7.0%	6.1%
SiO <sub>2</sub>	88.6	63.3	76.9
Al <sub>2</sub> O <sub>3</sub>	6.9	16.2	13.3
Fe <sub>2</sub> O <sub>3</sub>	1.5	10.8	2.9
CaO	1.3	1.7	1.7
MgO	0.1	0.7	0.3
SO <sub>3</sub>	0.04	0.06	0.03
Loss	2.5	6.4	5.3
Na <sub>2</sub> O	0.0	0.4	0.0
K <sub>2</sub> O	0.1	0.6	0.2
Material Price FOB Mine	\$7.25/ton	\$6.00/ton	\$6.70/ton

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These materials are available by truck or rail, but Steilacoom currently has no rail unloading facility.

The Wenatchee mine is about 150 miles from Steilacoom, and the material would have to be trucked. Freight for the haul would be \$13.50/ton to \$14.00/ton.

The material that is trucked to Steilacoom would be handled again while loading a barge and would incur a \$2.50/ton handling charge.

I have attached some maps of the areas discussed, a brochure on Westshore Terminals Ltd., and a list of contacts at each of the suppliers. If you require any further information, please let me know.

*Shate*

NAF/mme  
Attachments

cc: A. C. Imhoff  
A. K. Mueller  
K. J. Rone

CANADIAN COAL SOURCES

Westar Mining (formerly B.C. Coal)

Brian Acton

Phone: (604) 681-8222 (British Columbia, Canada)

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Crows Nest Resources (Shell)

Roger Goodman

Bruce Graham

Phone: (403) 232-4355 (Alberta, Canada)

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Byron Creek Coal (Exxon)

Bob Steffey

Phone: (713) 656-2340 (Texas)

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STEILACOOM SAND and Loading Facility

Lone Star Industries, Inc.

Jim Post

Phone: (206) 622-2900 (Washington)

RAVENSDALE SILICA

Industrial Mineral Products

Victor Hoffman

Bud Berg

Phone: (206) 432-1286 (Washington)

WENATCHEE SILICA

Wenatchee Silica Products

Bud Truswell

Phone: (509) 663-1697 (Washington)